

22. A protein, produced by expression of recombinant DNA in a host cell and isolated from said host cell comprising a pair of polypeptide chains disulfide bonded to form a dimeric species, each of said pair of polypeptide chains having less than 200 amino acids in a sequence sufficiently duplicative of the sequence of COP5 or COP7:

	1	10	20	30	40
COP5		LYVDFSDVGWDDWIVAPPGYQAFYCHGECPFPLAD			
		50	60	70	
		HFNSTNHAVVQTLVNSVNSKIPKACCVPTELSA			
		80	90	100	
		ISMLYLDENEKVVLKQEMVVEGCGGCR			
	1	10	20	30	40
COP7		LYVDFSDVGWDDWIVAPPGYHAFYCHGECPFPLAD			
		50	60	70	
		HLNSTNHAVVQTLVNSVNSKIPKACCVPTELSA			
		80	90	100	
		ISMLYLDENEKVVLKQEMVVEGCGCR			

such that said dimeric species has a conformation capable of inducing bone and cartilage formation when implanted in a mammal in association with a matrix.

23. The osteogenic protein of claim 22 having a molecular weight of about 30 kD when oxidized as determined by comparison to molecular weight standards in SDS-polyacrylamide gel.

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